



INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference TS 8576 PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/07863	International filing date (day/month/year) 18.07.2003	Priority date (day/month/year) 19.07.2002
International Patent Classification (IPC) or both national classification and IPC F23D11/44		
Applicant SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

## 3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  17.02.2004	Date of completion of this report  08.11.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Mougey, M  Telephone No. +31 70 340-4298 

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**4. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

**Description, Pages**

1-11 as originally filed

**Claims, Numbers**

1-11 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: . , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
✓ citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-11
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-11
Industrial applicability (IA)	Yes: Claims	1-11
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Re Item V**

- Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Independent claim 1**

1.1 The document 'High modulation burner for liquid fuels based on porous media combustion and cool flame vaporization', 'TRIMIS AND ALL', 'SIXTH INTERNATIONAL CONFERENCE ON TECHNOLOGIES AND COMBUSTION FOR A CLEAN ENVIRONMENT', 'Porto, Portugal', 2, paper 23.1//09-07-2001, -, 12-07-2001 will be referred to hereafter as D1 and is considered as the closest prior art with regard to the subject-matter of claim 1.

D1 discloses a process for the combustion of an Industrial Gas Oil (see page 1, column 2, line 54 to page 2, column 1, line 2) including the following steps:

- obtaining a mixture of liquid hydrocarbon droplets in an oxygen containing gaseous phase ( see page 2, column 1, lines 2-3),
- evaporating the liquid hydrocarbon droplets to obtain a gaseous mixture comprising oxygen and hydrocarbon ( see page 2, column 1, lines 3-6),
- burning the totality of the mixture obtained in the previous step (see page 2, column 1, lines 16-24).

1.2 The subject-matter of claim 1 differs from the teachings of D1 in the use of a specific type of Industrial Gas Oil: Fischer-Tropsch derived hydrocarbon fuels. However, the fact of selecting the most appropriate type fuel for a given combustion system falls within the scope of a the normal engineer design activity and can only involve an inventive step when the choice of such a fuel leads to unexpected effects or properties.

The properties of Fischer-Tropsch derived fuel to reduce emissions and deposits which are mentioned in the application are well known (see for example US-A1-6056793, column 6, lines 51-54 and DE-A1-19517537 page 2, lines 22-37 ) and can therefore not be considered as surprising effects.

1.3 The subject-matter of independent claim 1 can therefore not be considered as involving an inventive step in the sense of Article 33(3) PCT.

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2. dependent claims

The additional features of dependent claims 2-11 are already known:

- for claim 2, see D1, page 2, column 1, lines 2-6,
- for claim 3, see D1, page 2, column 1, lines 16-47,
- for claim 4, see D1, page 2, column 2, lines 6-8,
- for claim 5, see DE-U1-20110553, page 1, paragraph 1 to page 2, paragraph 1,
- for claim 6, see D1, column 2, lines 6-8,
- for claim 7, see EP-A1-949452, column 1, paragraph 1,
- for claim 8, see EP-A2-947769, paragraphs 16,17,
- for claim 9, see US-A1-6056793, column 3, lines 33-45,
- for claim 10, see US-A1-6056793, column 5, line 66 to column 6, line 19,
- for claim 11, see US-A1-5295818, column 3, lines 27-29 and column 5, lines 49-64.